

canine and next premolar one-third the width of the canine; second premolar half the length of the canine, first a little longer, both triangular and single-rooted; third premolar as long as the canine, or one-third longer than the next molar, double-rooted, and triangular. First three molars quadrate, with two blunt tubercles on outer and two on inner edge; fourth or last molar smallest, triangular, with one tubercle behind and two in front. The molars and second and third premolars are in continuous contact. Lower jaw: all the teeth in continuous series without interval; incisors long, nearly horizontal, sharp-pointed; first three premolars small, short, and obtuse, the antero-posterior extent of the first greatest, third least, but all of one height; fourth premolar twice the height of the others, triangular, with a slight lobe at back of base; first molar with anterior half forming a conical lobe nearly twice the height of the last premolar and of the rest of the molars; posterior half bitubercular, and only as high as the others, which are all quadritubercular, except the small hind one, which is tritubercular.

	inches.	lines.
Length of head	1	8
„ from snout to base of tail ..	5	4
„ of tail	6	5
„ of ear	0	9
„ of fore foot	0	9
„ of hind foot	1	0 $\frac{1}{2}$
„ of nasal bones	0	6 $\frac{1}{2}$
„ of frontal bones	0	7

EXPLANATION OF PLATE VI.

Fig. 1 represents the male, half the natural size.

Figs. 2, Fore foot, and 3, hind foot, twice the natural size.

Figs. 4, Upper, and 5, lower jaw, three times the natural size.

XXXVII.—*Additions to the British Fauna.*

By Dr. ALBERT GÜNTHER, F.R.S.

[Plate V.]

ALTHOUGH we are very well acquainted with the marine fishes inhabiting the shores of Great Britain and Ireland, our knowledge of the pelagic and deep-sea forms is extremely scanty. Of the Dealfish (*Trachipterus arcticus*), a fish by no means uncommon in the northern and eastern seas of Scotland, I have never seen a British example in a good state of preservation. Now and then, after the gales of the vernal equinox, a mutilated specimen of the Ribbonfish (*Regalecus Banksii*) is drifted ashore,

rarely to fall into the hands of a naturalist, generally to be cut up as bait for the lobster-pot. The British species of *Leptocephalus* is not better known than the allied forms from the Mediterranean and tropical seas. Others, like *Centrolophus*, are known from single examples only. Their development, as well as that of many of the more common forms which spawn in the open or deep sea, is perfectly unknown.

In seeking information concerning this part of the British fauna, we are not hunting after a shadow: there is evidence enough to show that the depths of the British seas are inhabited by a fish-fauna very different from that of the coasts, and that this fauna is composed of two elements—first, of those which may be regarded as indigenous, and, secondly, of such forms as are frequently, perhaps constantly, carried by currents from more southern parts of the Atlantic northwards, even to the coasts of Norway (*Antennarius*, *Batrachus*, *Beryx*)—not to mention those fishes which by their strong power of swimming are enabled to reach our shores in their migrations, as *Ausonia*.

The causes of our incomplete knowledge of these fishes are evident: zoologists were either not aware of the existence of such a fauna, or satisfied with the stray specimens thrown in their way by accident; while the difficulties surrounding the examination of the deep-sea fishes are so great as to render all progress in attaining to a knowledge of them extremely slow. Still it may be hoped that, after the attention of naturalists has been directed to the subject, no opportunity will be lost of advancing it.

Such an opportunity occurred to Mr. J. Gwyn Jeffreys, who, during his exploration of the marine invertebrate fauna of the Hebrides, preserved the specimens of fishes which were brought up in the dredge from a depth of from 80 to 90 fathoms. Small as the number of specimens is, the result of their examination proved to be most interesting and satisfactory, inasmuch as they belong to four species new to the British fauna, two being new to science, viz. *Ammodytes siculus* (Swains.), *Motella macrophthalmia* (sp. n.), *Callionymus maculatus* (Bonap.), and *Gobius Jeffreysii* (sp. n.). On former occasions I have pointed out that the geographical range of deep-sea fishes appears to be extended in proportion to the vertical depth inhabited by them, and that they are either distinguished by an increased size of the eye to collect as many rays of light as possible, or by a rudimentary condition of that organ, as is the case in fishes inhabiting caves. This is in some measure verified by the species collected by Mr. Jeffreys, which, however, it must be remembered, inhabit a much less depth than *Regalecus*, *Plagyodus*, &c. Two of them (*Callionymus maculatus* and *Ammodytes siculus*) were previously known as occurring in the Mediterranean; and the eyes of three

of them are conspicuously larger than in their congeners (*Ammodytes lancea*, *Callionymus lyra*, and *Motella tricirrata*).

1. *Ammodytes siculus* (Swains.).

(Smooth Sand-Launce.)

This species was hitherto known from Sicily only. For description see Günth. Fish. iv. p. 386.

2. *Motella macrophthalmia*. Pl. V. fig. B.

(Large-eyed Rockling.)

This species has three barbels, one at each of the anterior nostrils and one at the chin. It is distinguished from specimens of the same size of the other three-bearded species by its large eye, the diameter of which, in the specimen obtained, is as long as the snout, one-fourth of the length of the head, and much longer than the width of the interorbital space. The teeth of the mandible are very unequal in size, some being canine-like. The anterior ray of the rudimentary first dorsal fin is about as long as the eye. D. 55. A. 55. Back with narrow brownish cross bars.

Three inches long.

The figure represents the specimen of the natural size. For the sake of comparison the figure of the head of *Motella tricirrata* (B') has been added.

3. *Callionymus maculatus*, Bonap. Pl. V. fig. A.

(The Southern Dragonet.)

This species is common in the Mediterranean; but it has been also observed on the coast of Norway. It is easily recognized by the shortness of the snout relatively to the diameter of the eye.

4. *Gobius Jeffreysii*. Pl. V. fig. C.

D. 6 | 10. A. 9. L. lat. 30.

Body as deep as broad anteriorly, its greatest depth being one-half of the length of the head, which is two-sevenths of the total (without caudal). Head depressed, broader than high, its greatest width being two-thirds of its length. Snout of moderate extent, though shorter than the eye; lower jaw projecting beyond the upper. Eyes very close together, large, their diameter being two-sevenths of the length of the head. Dorsal fins higher than the body; the second dorsal spine more or less prolonged. The pectoral and ventral fins reach equally far backwards, to the vent. A series of five rounded blackish spots along the lateral line, the last being on the root of the caudal fin. Dorsal fins with series of black spots; outer half of the anal blackish. A blackish bar below the eye.

Three specimens, two inches long.

The only British species with which this Goby might be confounded, and to which it is evidently allied, is *Gobius rhodopterus* (Gthr.); however, this latter species is said to have the interorbital space broader, its width being equal to one-half of the diameter of the eye (Cuv. & Val. xii. p. 50); and M'Coy, who examined two Irish examples, describes the snout as "very short, tumid, and convex," which character cannot be applied to *G. Jeffreysii*.

XXXVIII.—*On the Systematic Value of Rhynchophorous Coleoptera.* By JOHN L. LECONTE, M.D.*

IN the empirical arrangement of the families of Coleoptera, which has resulted from the adoption of the tarsal system of division, the families contained in the great natural group of Heteromera are followed by the Curculionidæ and Scolytidæ, which, more or less subdivided into smaller families, have been supposed to establish a linear relation between the rostrated Heteromera (*Salpingus*, *Rhinosimus*, &c.) and the Cerambycidæ and Chrysomelidæ, the great types of the Pseudotetramera or Subpentamera of various authors.

It is the object of the present investigation to determine the limits and the relations of the first-mentioned of these types, the Rhynchophora.

The inferiority of this type is manifested not only in the larval condition by the limited number or absence of visual lenses, the want of locomotive appendages, the feeble development or entire want of antennæ, and the unchitinized epidermis, but also by the combination in the imago of characters belonging to a perfectly developed organism with others pertaining to an inferior grade in the scale of Coleoptera.

Thus, for instance, while we perceive, in the other series of beetles, that the lower forms retain certain larval characters (as evidenced by the extension of the coxæ, the imperfection of the anterior coxal cavities, the softness of the integuments, and the want of centralization in the abdomen), all such degradational characters are absent in the Rhynchophora.

Other characters representing low grades in their respective series do not appear in the Rhynchophora—such as vegetative growth of the organs of sense, indicated by pectinate or flabellate antennæ, or excessive length of palpi.

On the contrary, we find in the Rhynchophora that the in-

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